

VR for SCI Rehab

Country	Spain
Institution/Organisation	Institut Guttmann, Barcelona
Type of setting	Specialized neurorehabilitation hospital
National Context	Spain has a strong SCI rehabilitation network; VR is used as an adjunct to standard physiotherapy in leading centers.

The project employed immersive VR to support motor and psychological recovery in SCI patients. This included using VR environments to simulate functional movements and enhance motivation, engagement, and self-efficacy during rehabilitation.

Implementation Process

- Steps Taken:** VR hardware was configured, therapeutic environments defined, clinical validation completed, therapists trained, and outcomes continuously monitored for refinement.
- Stakeholders Involved:** Patients, physiotherapists, neuropsychologists, and VR/software developers.
- Timeframe:** Several months.

Impact and Results

- Quantitative Results:** VR training led to a 19% improvement in lower-limb coordination and a 34% increase in therapy adherence.
- Qualitative Outcomes:** Patients reported higher motivation, reduced monotony, and a stronger sense of progress during rehabilitation.

Success Factors

- Strong collaboration between physiotherapists, neuropsychologists, and VR development teams.
- Effective training for therapists using the immersive rehabilitation system.
- Tailored VR scenarios aligned with the functional and psychological needs of SCI patients.

Challenges and Barriers

- Defining appropriate VR tasks and optimal conditions for effective patient engagement.
- Maintaining consistent motivation and tolerance during immersive sessions of varying intensity.
- Addressing variability in patient abilities and the need for adaptable, individualized VR programs.

Key Lessons Learned

- Clear therapeutic protocols and well-designed VR tasks are essential for effective and safe use of virtual reality in SCI rehabilitation.
- Strong collaboration between therapists, psychologists, and VR developers supports impact and long-term sustainability of immersive rehabilitation approaches.